FIGURE 1

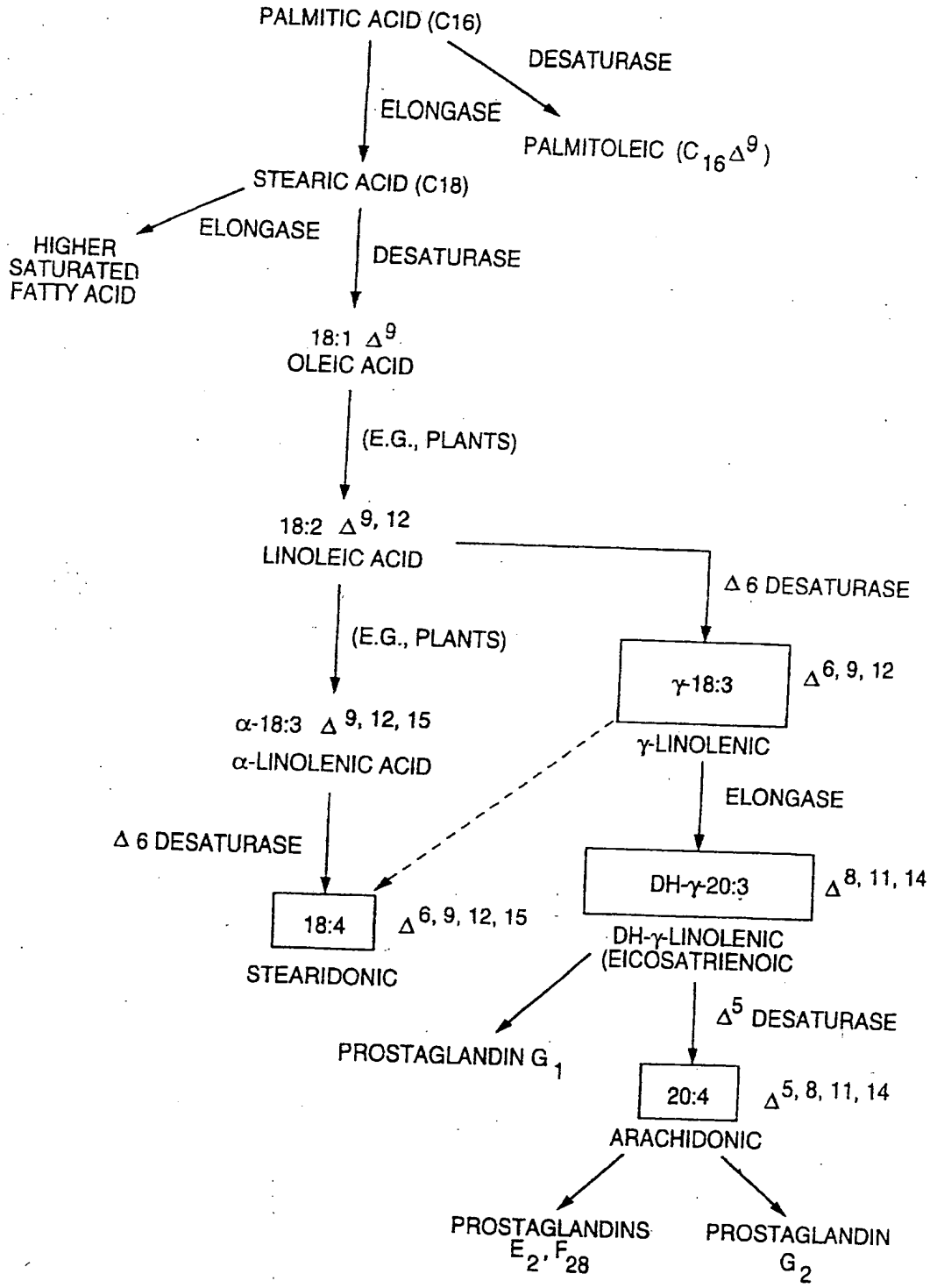
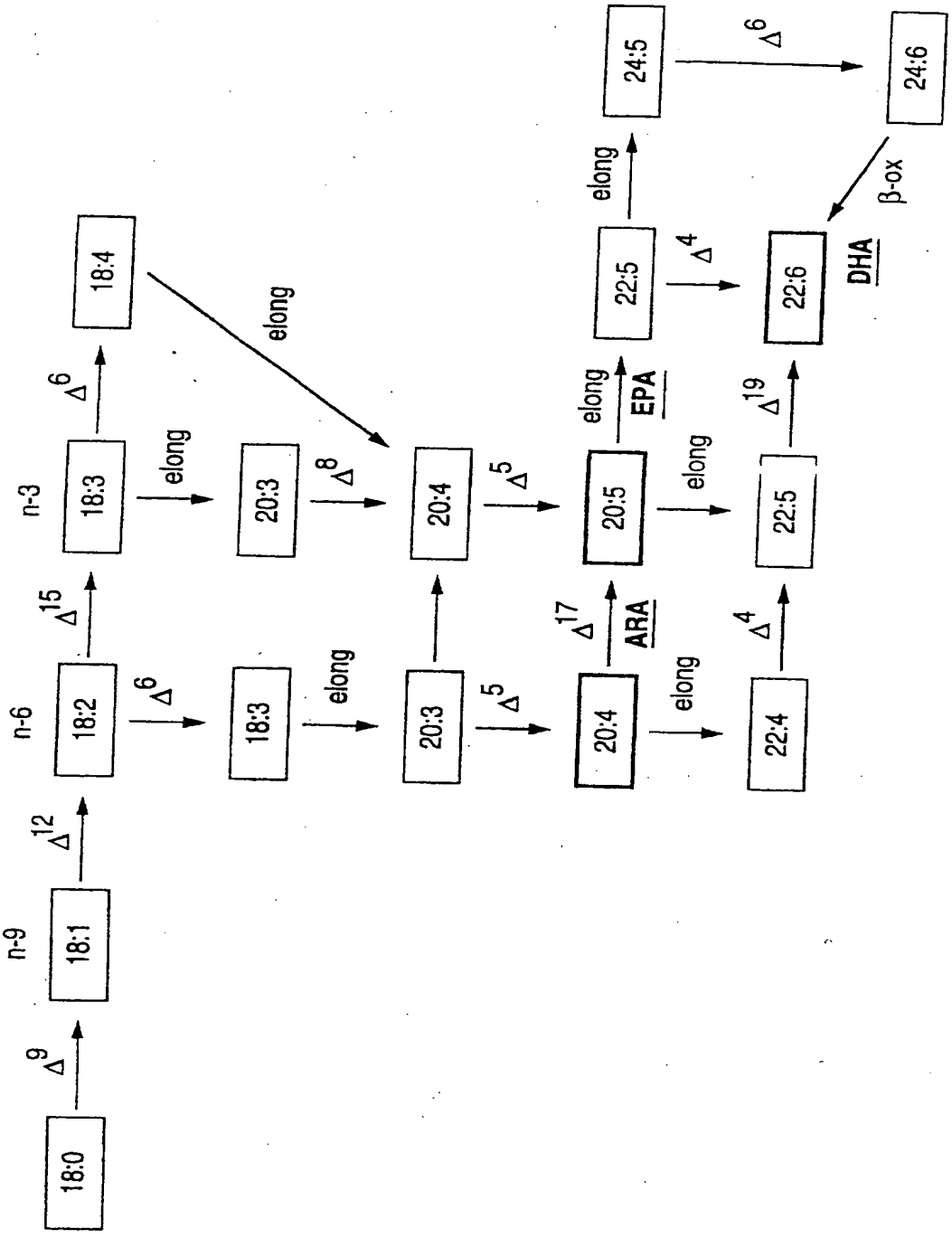

PALMITIC ACID (C16)
DESATURASE
ELONGASE
PALMITOLEIC ($C_{16}\Delta^9$)
STEARIC ACID (C18)
ELONGASE
HIGHER SATURATED FATTY ACID
DESATURASE
18:1 Δ^9 OLEIC ACID
(E.G., PLANTS)
18:2 $\Delta^{9, 12}$ LINOLEIC ACID
Δ 6 DESATURASE
(E.G., PLANTS)
γ-18:3
$\Delta^{6, 9, 12}$
γ-LINOLENIC
α-18:3 $\Delta^{9, 12, 15}$ α-LINOLENIC ACID
ELONGASE
Δ 6 DESATURASE
DH-γ-20:3
$\Delta^{8, 11, 14}$
18:4
$\Delta^{6, 9, 12, 15}$
DH-γ-LINOLENIC (EICOSATRIENOIC
STEARIDONIC
Δ^5 DESATURASE
PROSTAGLANDIN G_1
20:4
$\Delta^{5, 8, 11, 14}$
ARACHIDONIC
PROSTAGLANDINS E_2, F_{28}
PROSTAGLANDIN G_2

FIGURE 2


18:0
Δ9
18:1
n-9
Δ12
18:2
n-6
Δ15
18:3
Δ6
18:4
n-3
Δ6
18:3
elong
20:3
Δ8
20:4
Δ5
20:3
elong
18:3
Δ6
18:2
20:4
Δ5
20:5
EPA
Δ17
20:4
ARA
elong
22:5
elong
22:4
Δ4
22:5
elong
24:5
Δ6
24:6
β-ox
22:5
Δ4
22:6
DHA
Δ19

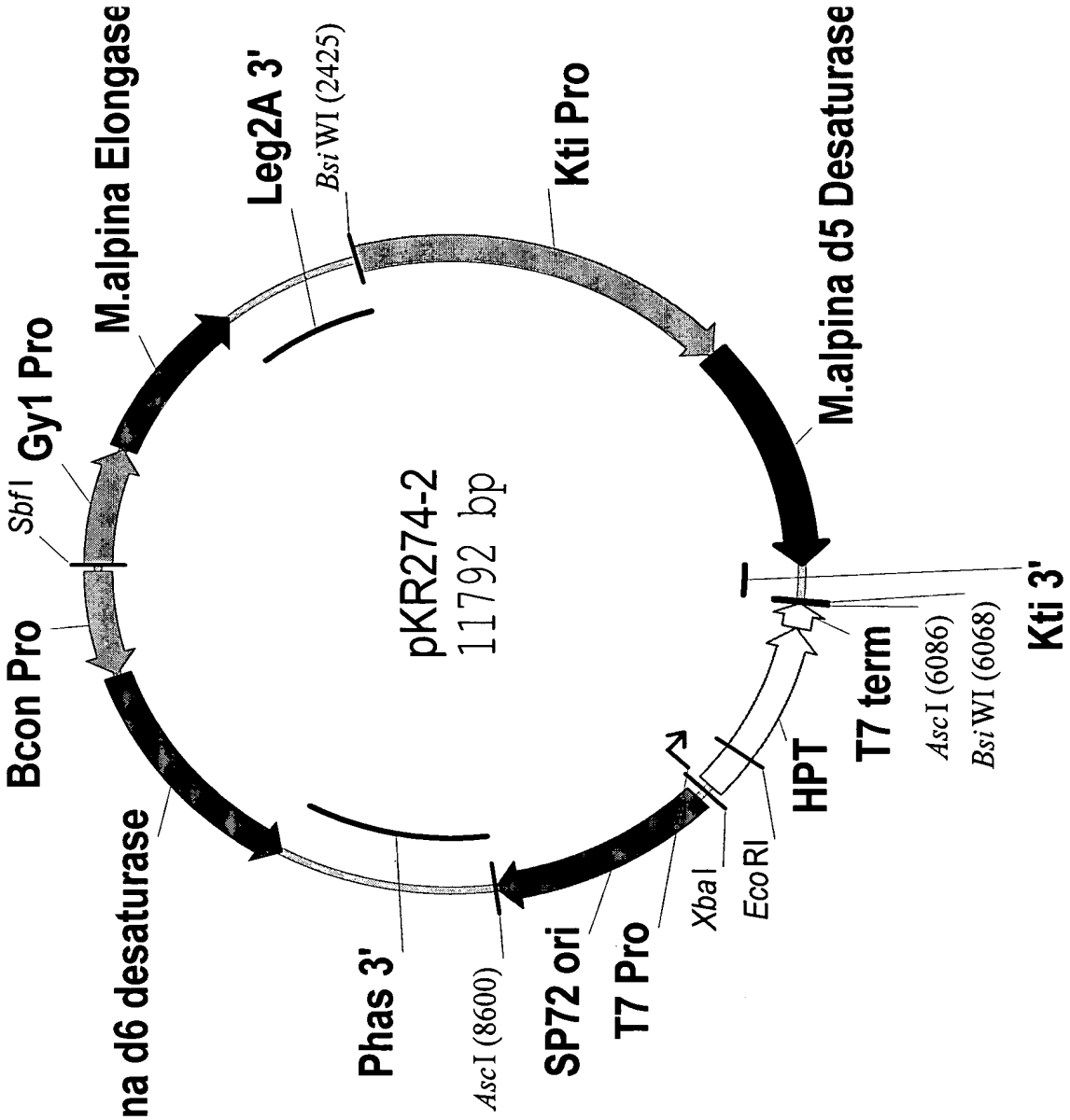

M.alpina Elongase
Leg2A 3'
BsiWI (2425)
Kti Pro
M.alpina d5 Desaturase
Gy1 Pro
SbfI
pKR274-2
11792 bp
Bcon Pro
M.alpina d6 desaturase
Phas 3'
AscI (8600)
SP72 ori
T7 Pro
XbaI
EcoRI
HPT
T7 term
AscI (6086)
BsiWI (6068)
Kti 3'

FIGURE 3

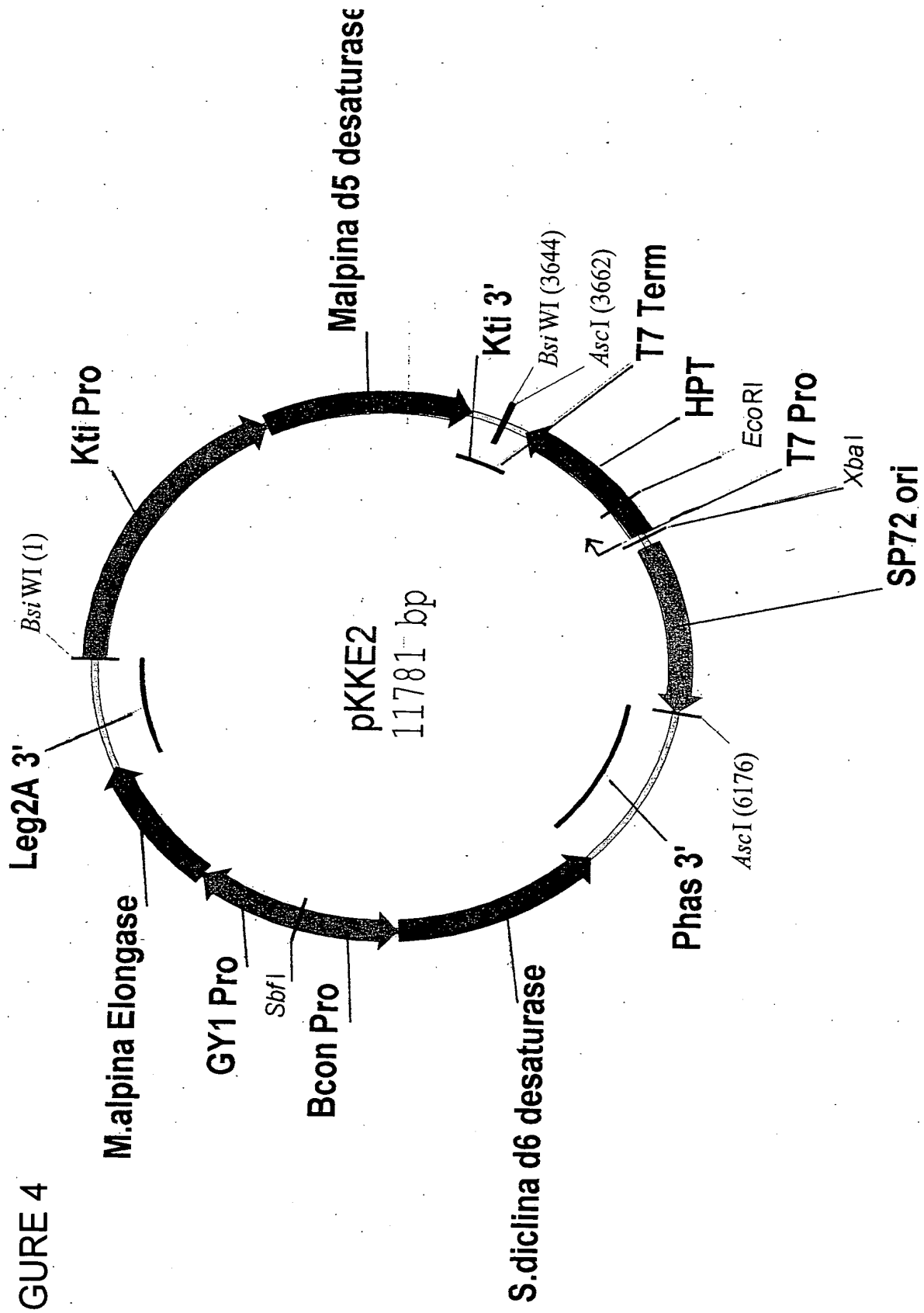
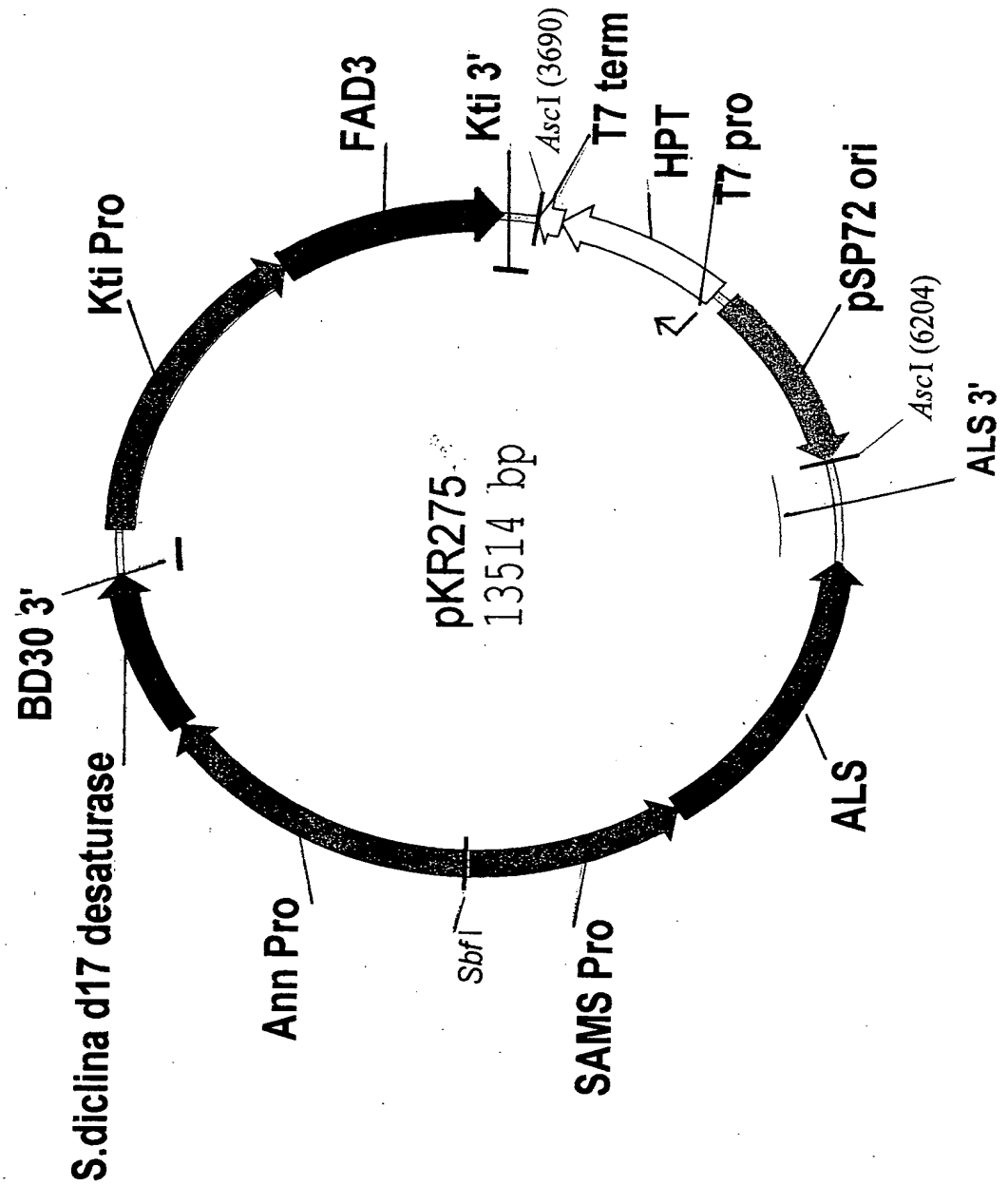

pKKE2
11781 bp
Malpina d5 desaturase
Kti 3'
BsiWI (3644)
AscI (3662)
T7 Term
HPT
EcoRI
T7 Pro
XbaI
SP72 ori
AscI (6176)
Phas 3'
S.diclina d6 desaturase
Bcon Pro
SbfI
GY1 Pro
M.alpina Elongase
Leg2A 3'
BsiWI (1)
Kti Pro

FIGURE 4

FIGURE 5


pKR275
13514 bp
FAD3
Kti 3'
AscI (3690)
T7 term
HPT
T7 pro
pSP72 ori
AscI (6204)
ALS 3'
ALS
SAMS Pro
SbfI
Ann Pro
S.diclina d17 desaturase
BD30 3'
Kti Pro

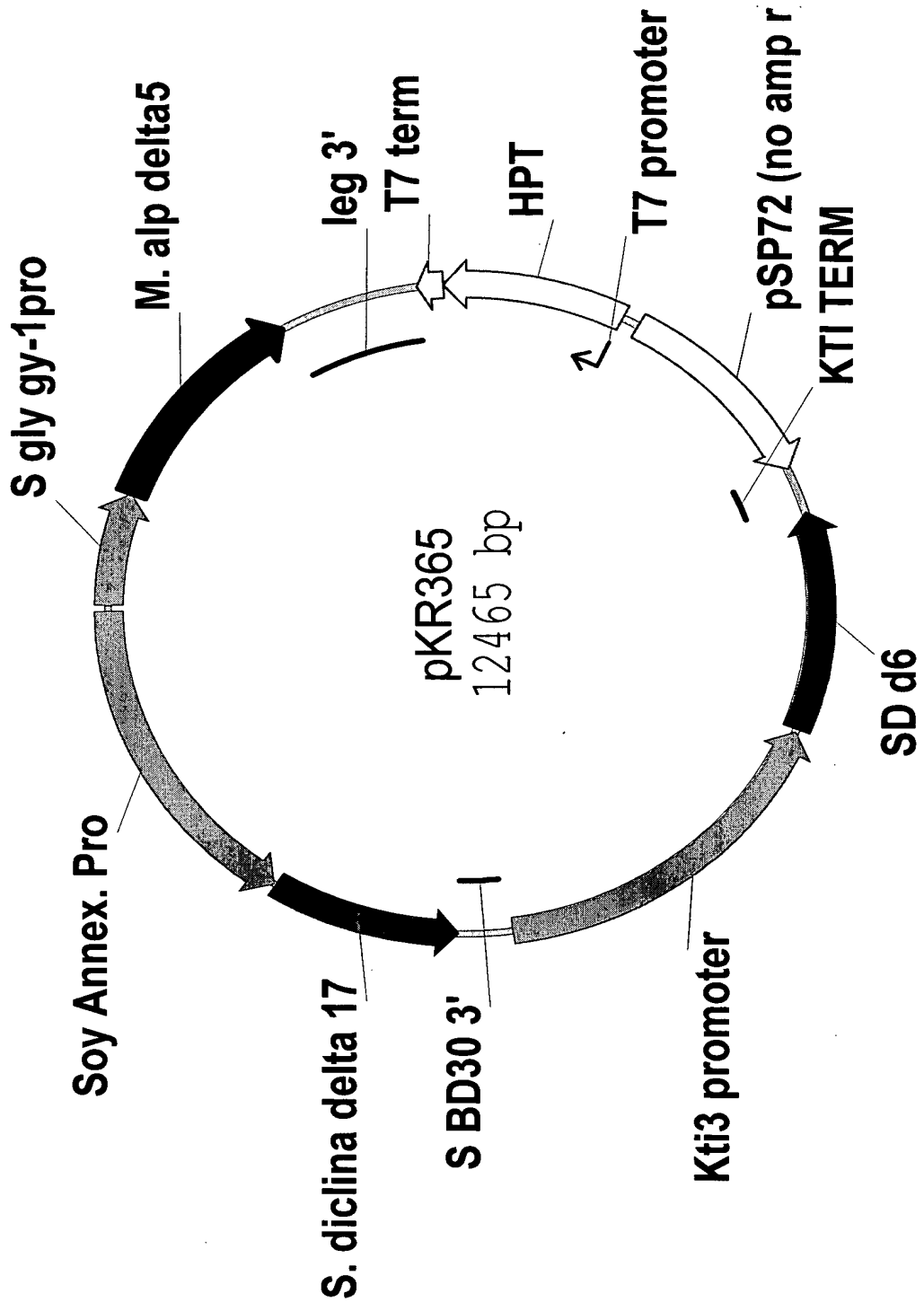
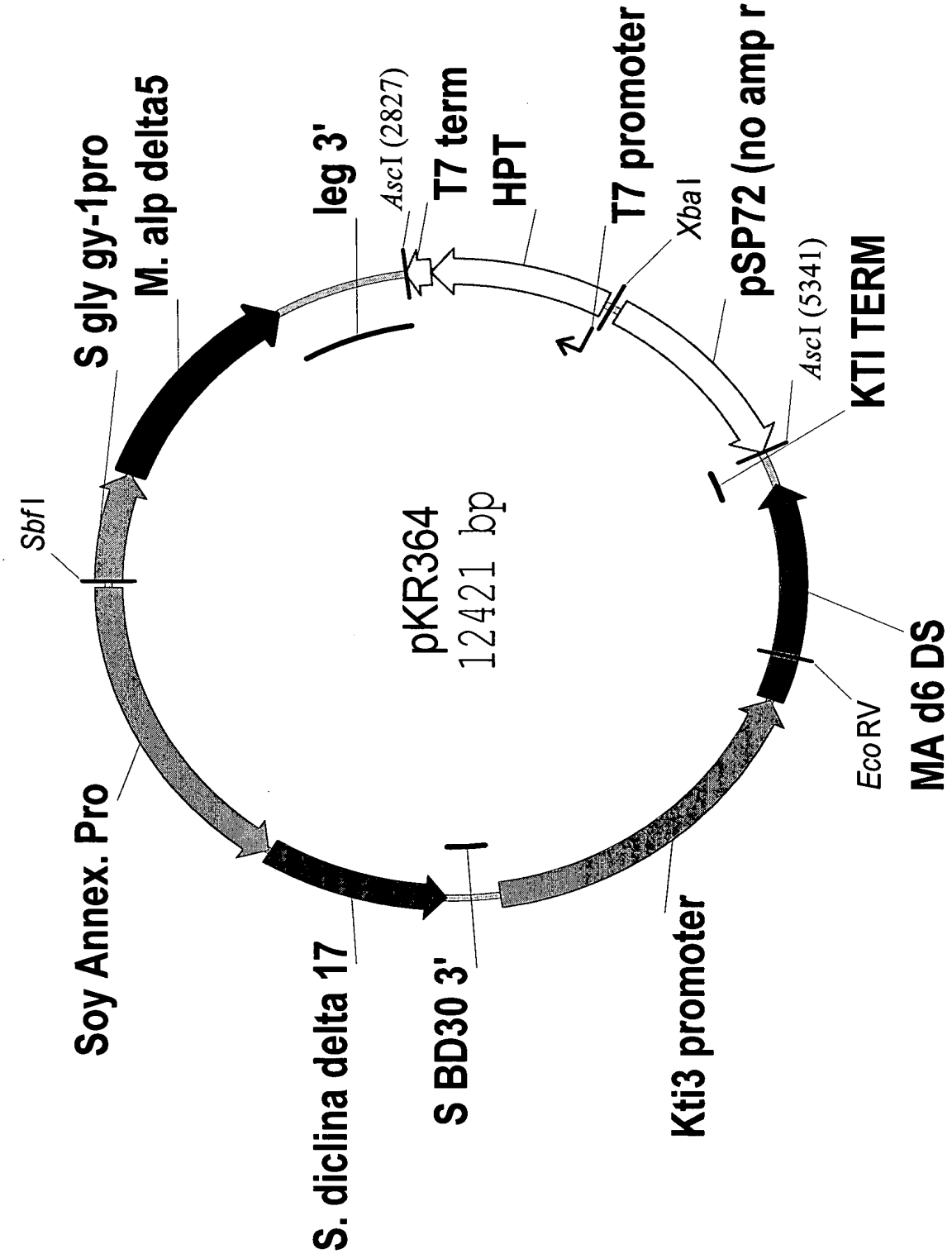

S gly gy-1pro
M. alp delta5
leg 3'
T7 term
HPT
T7 promoter
pSP72 (no amp r
KTI TERM
SD d6
Kti3 promoter
S BD30 3'
S. diclina delta 17
Soy Annex. Pro
pKR365
12465 bp

FIGURE 6

FIGURE 7


pKR364
12421 bp
Sbf I
S gly gy-1pro
M. alp delta5
leg 3'
Asc I (2827)
T7 term
HPT
T7 promoter
Xba I
pSP72 (no amp r
Asc I (5341)
KTI TERM
MA d6 DS
Eco RV
Kti3 promoter
S BD30 3'
S. diclina delta 17
Soy Annex. Pro

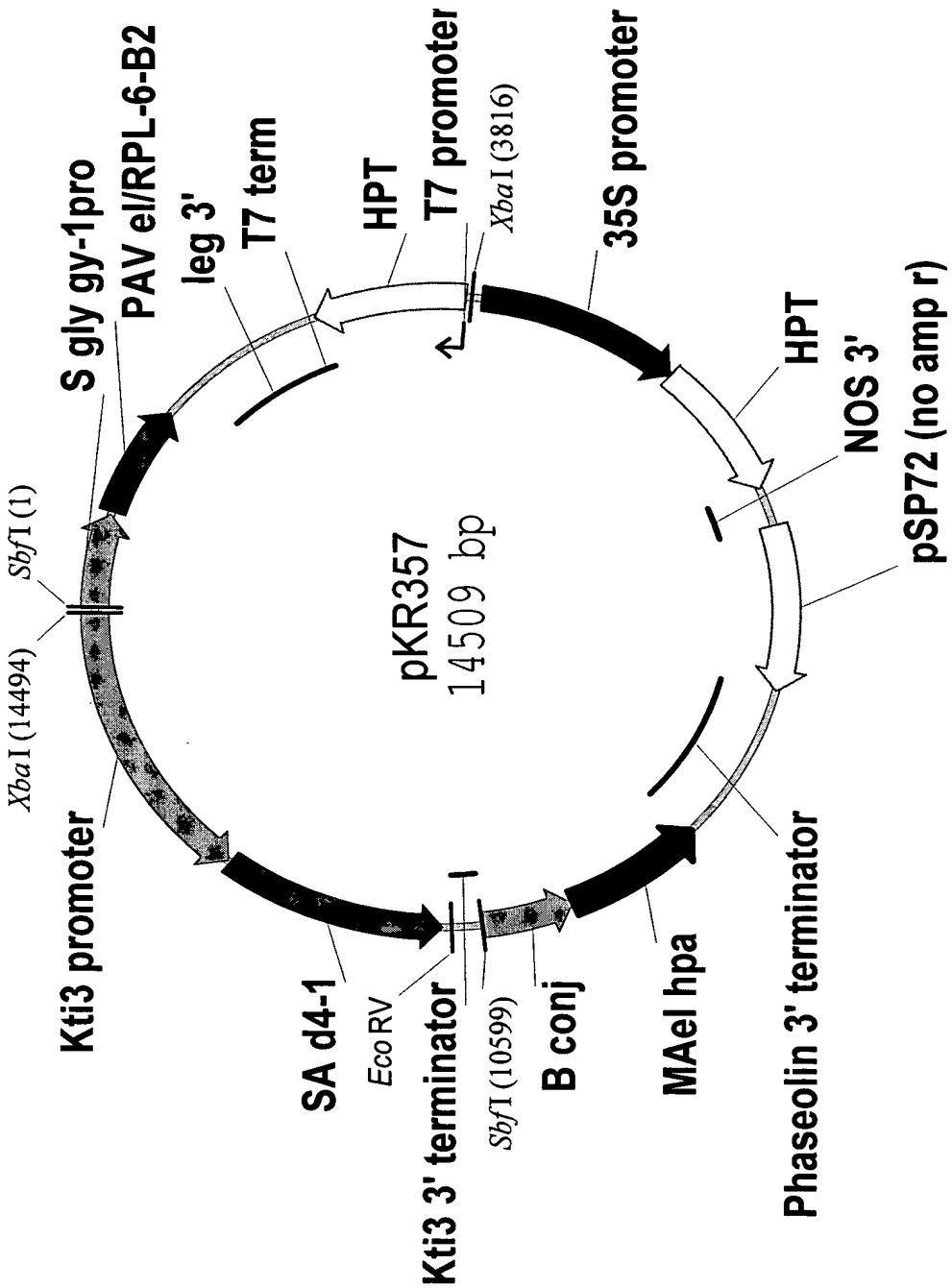

pKR357
14509 bp
S gly gy-1pro
PAV el/RPL-6-B2
leg 3'
T7 term
HPT
T7 promoter
XbaI (3816)
35S promoter
HPT
NOS 3'
pSP72 (no amp r)
Phaseolin 3' terminator
MAel hpa
B conj
SbfI (10599)
Kti3 3' terminator
EcoRV
SA d4-1
Kti3 promoter
XbaI (14494)
SbfI (1)

FIGURE 8